

“the first judgement circuit” lacks sufficient antecedent basis. Applicants have amended the claims to delete the term “first”.

The claim changes described above are believed to be unrelated to any statutory requirement for patentability, but are deemed worthwhile to make the claim language more readable. Applicants note that no prior art has been cited to require the changes identified above and that the changes have been made to clear up any matters of form only. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned “Version Marked to Show Changes.” In view of the foregoing amendments, Applicants request that the Examiner withdraw the rejections under 35 U.S.C. § 112, second paragraph.

35 U.S.C. § 103(a)

The Examiner rejected Claims 1 through 13 and 15 through 29 under 35 U.S.C. § 103 (a) as being unpatentable over Applicants’ Admitted Prior Art (“APA”) in view of Helms ‘992. Applicants respectfully traverse the Examiner’s rejections on the grounds that the references do not teach all of the elements of Claims 1 through 13 and 15 through 29 and further do not present a teaching to combine the references. To establish a prima facie case of obviousness under 35 U.S.C. § 103(a), the Examiner must show that 1) the references teach all of the elements of the claimed invention, 2) the references contain some teaching, suggestion or motivation to combine the references, and 3) the references suggest a reasonable expectation of success. Thus, because the references cited by the Examiner do not teach all of the elements of the claimed invention and do not contain a teaching to combine, the prima facie elements of an obviousness rejection under 35 U.S.C. § 103(a) are not met.

With respect to Claim 1, the APA, as admitted by the Examiner, does not teach a control circuit electrically connected to the liquid crystal display panel, as does the claimed invention, as amended. The APA also does not disclose a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector, as required by the claimed invention, as amended. The APA further does not teach the use of the collected ambient light as a backlight of the liquid crystal display panel. Since the APA does not teach all of the elements of the claimed invention, then Helms '992 must teach the remaining elements of the invention in order for the combination to teach all of the elements of the claimed invention. Helms '992 does not, however, teach a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector. The photodetector of Helms '992 is intended only to be indicative of the level of ambient light striking the front of the LCD, not detect the amount of ambient light collected by the light collector, as does the claimed invention, as amended. In addition, Helms '992 does not teach or disclose using the collected ambient light as a backlight of the liquid crystal display panel. Further, with respect to Claims 9 through 12, neither Helms '992 or the APA disclose a mechanism for controlling the opening and closing of the cover. The brightness control knob of Helms '992 has no structural or functional relationship to the structure or function of the claimed cover. Indeed, to conjure such a relationship requires much imagination and creativity. However, a prima facie obviousness case must be based on facts, not conjecture, imagination or creativity. In addition, the control knob of Helms '992 is not controlled by the control circuit, in fact, it overrides the control in Helms '992. This is vastly different from the operation of the cover in the claimed invention. In the claimed invention, the cover is controlled by the control circuit and the cover does not override the control circuit. Thus, the combination of

Helms '992 and the APA references does not teach or disclose all of the elements of the claimed invention, as amended. Thus, the obviousness rejection of Claim 1 cannot stand. Since Claims 2 through 14 depend from non-obvious Claim 1, Claims 2 through 14 should be deemed non-obvious as well. Applicants respectfully request that the Examiner withdraw the rejection of Claims 1 through 14 under 35 U.S.C. § 103(a).

With respect to Claim 15, the APA, as admitted by the Examiner, does not teach a control circuit electrically connected to the liquid crystal display panel. Also, the APA does not disclose a control circuit that controls the ON/OFF of the light source and the opening and closing of the cover. The APA also does not disclose a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector, as required by the claimed invention, as amended. The APA further does not teach the use of the collected ambient light as a backlight of the liquid crystal display panel. Since the APA does not teach all of the elements of the claimed invention, then Helms '992 must teach the remaining elements of the invention in order for the combination to teach all of the elements of the claimed invention. Helms '992 does not, however, teach a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector. In addition, Helms '992 does not teach or disclose using the collected ambient light as a backlight of the liquid crystal display panel. Thus, the combination of Helms '992 and the APA references does not teach or disclose all of the elements of the claimed invention, as amended. Thus, the obviousness rejection of Claim 15 cannot stand. Since Claims 16 through 19 depend from non-obvious Claim 15, Claims 16 through 19 should be deemed non-obvious as well. Applicants respectfully request that the Examiner withdraw the rejection of Claims 15 through 19 under 35 U.S.C. § 103(a).

With respect to Claim 20, the APA, as admitted by the Examiner, does not teach a control circuit electrically connected to the liquid crystal display panel. Also, the APA does not disclose a control circuit that controls the ON/OFF of the light source and the opening and closing of the cover. The APA also does not disclose a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector, as required by the claimed invention, as amended. The APA further does not teach the use of the collected ambient light as a backlight of the liquid crystal display panel. Since the APA does not teach all of the elements of the claimed invention, then Helms '992 must teach the remaining elements of the invention in order for the combination to teach all of the elements of the claimed invention. Helms '992 does not, however, teach a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector. In addition, as stated above, Helms '992 does not teach or disclose using the collected ambient light as a backlight of the liquid crystal display panel.

Further, with respect to claims 20 through 25, neither Helms '992 or the APA disclose a mechanism for controlling the opening and closing of the cover. The brightness control knob of Helms '992 has no structural or functional relationship to the structure or function of the claimed cover. Indeed, to conjure such a relationship requires much imagination and creativity. However, a prima facie obviousness case must be based on facts, not conjecture, imagination or creativity. In addition, the control knob of Helms '992 is not controlled by the control circuit, in fact, it overrides the control in Helms '992. This is vastly different from the operation of the cover in the claimed invention. In the claimed invention, the cover is controlled by the control circuit and the cover does not override the control circuit. Thus, the combination of Helms '992 and the APA references does not teach or disclose all of the elements of the claimed invention, as amended.

Thus, the obviousness rejection of Claim 20 cannot stand. Since Claims 21 through 25 depend from non-obvious Claim 20, Claims 21 through 25 should be deemed non-obvious as well. Applicants respectfully request that the Examiner withdraw the rejection of Claims 20 through 25 under 35 U.S.C. § 103(a).

With respect to Claim 26, the APA, as admitted by the Examiner, does not teach a control circuit electrically connected to the liquid crystal display panel. Also, the APA does not disclose a control circuit that controls the ON/OFF of the light source and the opening and closing of the cover. The APA also does not disclose a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector, as required by the claimed invention, as amended. The APA further does not teach the use of the collected ambient light as a backlight of the liquid crystal display panel. Since the APA does not teach all of the elements of the claimed invention, then Helms '992 must teach the remaining elements of the invention in order for the combination to teach all of the elements of the claimed invention. Helms '992 does not, however, teach a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector. Again, Helms '992 does not teach or disclose using the collected ambient light as a backlight of the liquid crystal display panel. Also, neither Helms '992 or APA teach a mechanism for controlling the opening and closing of the cover. Thus, the combination of Helms '992 and the APA references does not teach or disclose all of the elements of the claimed invention, as amended. Thus, the obviousness rejection of Claim 26 cannot stand. Since Claims 27 through 29 depend from non-obvious Claim 26, Claims 27 through 29 should be deemed non-obvious as well. Applicants respectfully request that the Examiner withdraw the rejection of Claims 26 through 29 under 35 U.S.C. § 103(a).

The Examiner rejected Claim 14 under 35 U.S.C. § 103 (a) as being unpatentable over Applicants' Admitted Prior Art in view of Helms '992, and further in view of Koenck et al. '553. Applicants respectfully traverse the Examiner's rejections on the grounds that the references do not teach all of the elements of Claim 14 and further do not present a teaching to combine the references. In addition to the amended dependency on non-obvious Claim 1, Applicants submit that the combination of the APA reference and Helms '992, as discussed above, does not disclose all of the limitations of Claim 14 in that the combination does not disclose a control circuit electrically connected to the liquid crystal display panel and the light receiving device or a light receiving device substantially countering the ambient light directed toward the light collector. In addition, as admitted by the Examiner, the combination of the APA and Helms '992 also does not teach that the light receiving device is located in the proximity of the light collector. Thus, what the combination does not teach, the Koenck '553 reference must teach in order for the obviousness rejection to stand. Koenck '553, however, does not teach a light collector for collecting ambient light which is then used as a backlight or a light receiving device substantially countering the ambient light directed toward the light collector. The device of Koenck '553 includes a sensor pixel countering ambient light directed *toward the display screen* of the LCD to detect the amount of ambient light incident to the display screen and a light sensor arranged in the same direction as the sensor pixel and at the same layer as a light source for detecting the amount of light emitted from the light source and reflected by the sensor pixel. The LCD then compares the amount of ambient light and the amount of light emitted from the light source and adjusts the backlighting level so that the contrast ratio of the LCD is maximized. This is fundamentally different from the claimed invention, wherein the light receiving device measures the light collected by the light collector and wherein the ambient light is used as the backlighting. Also, the orientation of the

sensor pixel is different from the orientation of the claimed light receiving device. As discussed above, the orientation of the sensor pixel is toward the display screen whereas the orientation of the light receiving device is toward the light collector. Consequently, the combination of Koenck '553, Helms '992 and the APA reference still do not teach all of the elements of the claimed invention. Applicants, thus, respectfully request that the Examiner withdraw the rejection of Claim 14 under 35 U.S.C. § 103(a).

In addition to the above arguments that the combination of the references does not teach all of the elements of the claimed invention, Applicants submit that the combination of these two references is improper because the references do not possess a teaching to combine. None of the references disclose the possibility of combining the references as suggested by the Examiner. Obviousness under 35 U.S.C. §103 turns on whether the prior art, including the knowledge available to one of ordinary skill in the art, provides some suggestion or motivation to combine the known elements. See Fromson v. Advance Offset Plate, Inc., 775 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed. Cir. 1985). Applicants submit that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggesting supporting the combination. ACS Hospital Systems v. Montofiore Hospital, 221 USPQ 929, 933 (Fed.Cir. 1974). Before obviousness may be established, the Examiner must show that there is either a suggestion in the art to produce the claimed invention or a compelling motivation based on sound scientific principles. Ex parte Kranz, 19 USPQ 2d 1216, 1218 (BPAI 1981). Applicants respectfully submit that the Examiner has not established a prima facie case of obviousness because all of the references, the APA, Helms '992 and Koenck '553, are devoid of any suggestion to connect the first and second switching devices to the terminals of a capacitor.

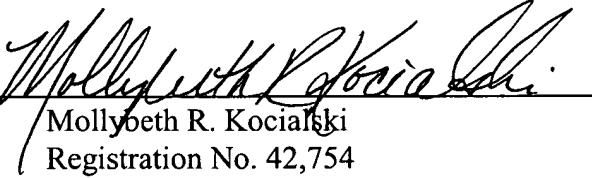
It appears that in the present case the only suggestion for the Examiner's combination of the teachings in the APA, Helms '992 and Koenck '553 improperly stems from the Applicants' own disclosure and not from the cited references themselves. At best, the Examiner's comments regarding obviousness appear to amount to an assertion that one of ordinary skill in the relevant art would have been able to arrive at Applicants' invention because they would have had the necessary skills to carry out the requisite process steps. This is an inappropriate standard for obviousness. In brief, none of the references alone or in combination provide an impetus necessary to cause one skilled in the art to combine the teachings of the references in the way the Examiner has done. Thus, Applicants respectfully request that the Examiner withdraw the rejection of Claims 1 through 29 under 35 U.S.C. § 103(a).

It is requested that the Examiner review the annotated claims hereinbelow and specifically identify any of the amendments that the Examiner believes may be reasonably construed as being related to the statutory requirements for patentability, and that narrow the claim scope. For each such amendment identified by the Examiner, it is requested that the representative named below be granted an opportunity to address the Examiner's belief that the amendment was made for statutory reasons of patentability and for narrowing the claim. In particular, it is requested that an opportunity be given to provide additional reasons and/or clarification for stating that these changes are not related to any statutory requirement for patentability or do not narrow the scope of the claim. It is further requested that the representative named below be contacted by telephone regarding this matter.

Applicants have tried to respond to all of the Examiner's concerns and submit that the claims are in a condition for allowance. In the event that the Examiner has any questions regarding Applicants' position, the Examiner is invited to contact the below-named attorney at (303) 863-9700.

Respectfully submitted,

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Date: May 15, 2001
JA2933\SE-87\Response to 2-28 office action.wpd

SERIAL NO.: 09/344,629

PENDING CLAIMS MARKED TO SHOW CHANGES

Claim 1 (Amended)

A liquid crystal display apparatus comprising:

a liquid crystal display panel having a predetermined display characteristic;

a luminescent unit located adjacent to the liquid crystal display panel, wherein the

5 luminescent unit includes a light collector, which collects ambient light, and a light source,
wherein the collected ambient light is used as a backlight of the liquid crystal display panel;

a light receiving device substantially countering the ambient light directed to the light
collector to detect the amount of ambient light collected by the light collector; and

10 a control circuit electrically connected to the liquid crystal display panel and the light
receiving device, wherein the control circuit varies the predetermined display characteristic in
accordance with the amount of [collected] the detected ambient light.

Claim 14 (Amended)

The apparatus according to claim [13] 1, wherein the light receiving device is located in
the proximity of the light collector.

Claim 15 (Amended)

A liquid crystal display apparatus comprising:

a liquid crystal display panel having a predetermined display characteristic;

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a luminescent unit arranged adjacent to the liquid crystal display panel for providing light to the display panel to illuminate the display panel, wherein the luminescent unit includes a light collector, which collects ambient light, and a light source, wherein the collected ambient light is used as a backlight of the liquid crystal display panel;

5 a light receiving device substantially countering the ambient light directed toward the light collector [for generating] to generate a light amount signal corresponding to the amount of ambient light [illuminating the liquid crystal display panel] collected by the light collector; and

a control circuit electrically connected to the liquid crystal display panel and the light receiving device, wherein the control circuit varies the predetermined display characteristic in
10 accordance with the light amount signal.

Claim 20 (Amended)

A liquid crystal display apparatus comprising:

a liquid crystal display panel for displaying an image having a predetermined contrast ratio and brightness;

5 a luminescent unit arranged adjacent to the liquid crystal display panel, wherein the luminescent unit includes a light collector, which collects ambient light, a light source, and a cover, which opens and closes to selectively cover the light collector, wherein the collected ambient light is used as a backlight for the liquid crystal display panel;

a cover driving apparatus for opening and closing the cover;

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a light receiving device substantially countering the ambient light directed toward the light collector [for generating] to generate a light receiving signal corresponding to the amount of ambient light collected by the light collector; and

a control circuit connected to the liquid crystal display panel, the light receiving device,
5 the light source, and the cover driving apparatus, wherein the control circuit controls the ON/OFF of the light source, the opening and closing of the cover, and adjusts the contrast ratio and the brightness in accordance with the light receiving signal.

Claim 21 (Amended)

The apparatus according to claim 20, wherein the control circuit includes:

a judgement circuit for generating at least one of a contrast ratio adjustment signal, a brightness adjustment signal, a cover driving signal and an ON/OFF signal in accordance with
5 the light receiving signal;

a contrast ratio adjustment circuit connected to the [first] judgement circuit, the contrast ratio adjustment circuit processing an image signal to adjust the contrast ratio in accordance with the contrast ratio adjustment signal; and

a brightness adjustment circuit connected to the contrast ratio adjustment circuit and the
10 liquid crystal display panel, the brightness adjustment circuit processing the image signal, which contrast ratio has been adjusted, to adjust the brightness in accordance with the brightness adjustment signal.

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Claim 23 (Amended)

The apparatus of claim 20, wherein the control circuit includes:

a linear contrast ratio adjustment circuit for receiving the light receiving signal and processing an image signal to adjust the contrast ratio in a linear manner in accordance with the light receiving signal;

a linear brightness adjustment circuit connected to the linear contrast ratio adjustment circuit and the liquid crystal display panel, the linear brightness adjustment circuit receiving the light receiving signal from the light receiving device and processing the image signal, which contrast ratio has been adjusted, to adjust the brightness in a linear manner in accordance with the light receiving signal;

a first judgement circuit connected to cover driving apparatus, the [third] first judgement circuit receiving the light receiving signal from the light receiving device and comparing the light receiving signal with a first criterion value to generate a cover driving signal; and

a second judgment circuit connected to the light source, the [fourth] second judgement circuit receiving the light receiving signal from the light receiving device and comparing the light receiving signal with a second criterion value to generate an ON/OFF signal.

Claim 26 (Amended)

A liquid crystal display apparatus comprising:

a liquid crystal display panel for displaying an image having a predetermined contrast ratio and brightness;

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a luminescent unit arranged adjacent to the liquid crystal display panel, wherein the luminescent unit includes a light collector, which collects ambient light, a light source, and a cover, which opens and closes to selectively cover the light collector, wherein the collected ambient light is used as a backlight of the liquid crystal display panel;

5 a cover driving apparatus for opening and closing the cover;

a first light receiving device substantially countering the ambient light directed toward the light collector [for generating] to generate a first light receiving signal corresponding to an amount of ambient light collected by the light collector;

10 a second light receiving device for generating a second light receiving signal corresponding to a total amount of light illuminating the liquid crystal panel, which includes the ambient light; and

15 a control circuit connected to the liquid crystal display panel, the first and second light receiving devices, the light source, and the cover driving apparatus, wherein the control circuit controls the ON/OFF of the light source and the opening and closing of the cover in accordance with the first light receiving signal, and adjusts the contrast ratio and the brightness in accordance with the second light receiving signal.